

CLAIMS

What is claimed is:

1. A vehicle wheel bearing comprising:

an inner member including a wheel hub integrally formed with a wheel mounting flange at one end, an inner raceway surface at an outer circumferential surface of said inner member and a stepped portion, of small diameter, axially extending from the inner raceway surfaces;

an inner ring fitted on the stepped portion and formed with an another inner raceway surface at an outer circumferential surface;

an outer member integrally formed with a body mounting at its periphery;

double row outer raceway surfaces at an inner circumferential surface of said outer member opposite to the inner raceway surfaces;

double row rolling elements arranged between the outer and inner members;

sealing devices for sealing annular spaces between the outer and inner members;

said inner ring is secured to the wheel hub in a non-axially movable fashion relative to the wheel hub by a caulked portion formed by plastically deforming a radially outward end of the stepped portion, of small diameter, of the wheel hub;

a sealing device on an inboard side of the sealing devices comprises a first sealing plate arranged on the inner ring and a second sealing plate arranged on the outer member opposite to the first sealing plate; said first sealing plate has a radially extending portion arranged at an inboard side of the bearing; an elastomeric material bonded on the radially extending portion of the first sealing plate, said elastomer material includes magnetic substance powder, North and South poles are alternately magnetized along the circumferential direction; said

second sealing plate has a substantially “L”-shaped cross-section formed by a cylindrical portion and a radially extending portion; side-lip(s) slidably contact the radially extending portion of the first sealing plate; the tip of the radially extending portion of the first sealing plate is positioned to keep a slight radial gap relative to the cylindrical portion of the second sealing plate; and the exposed portion of the inner ring is covered by the first sealing plate.

2. A vehicle wheel bearing of claim 1, wherein the first sealing plate is formed as a cap with a fitted portion to be press-fitted on the outer circumferential surface of the inner ring and a bottom portion to cover the caulked portion.

3. A vehicle wheel bearing of claim 1, wherein the first sealing plate is formed as a disk configuration to abut the end face of the inner ring and is secured thereto by the caulked portion of the wheel hub.

4. A vehicle wheel bearing of claim 1, wherein the first sealing plate has a fitted portion to be press-fitted on the outer circumferential surface of the inner ring and a fixed portion to be secured to the end face of the inner ring by the caulked portion of the wheel hub, and a recess for containing the fixed portion is formed on the caulked portion.

5. A vehicle wheel bearing of claim 1, wherein the elastomer material is bonded to the first sealing plate over a region from the radially outermost end of the radially extending portion to a point of radially inward beyond the outer circumferential surface of the inner ring.

6. A vehicle wheel bearing comprising:

an inner member including a wheel hub integrally formed with a wheel mounting flange at one end, an inner raceway surface at an outer circumferential surface of said inner member and a stepped portion, of small diameter, axially extending from the inner raceway surfaces;

an inner ring fitted on the stepped portion and formed with an another inner raceway surface at an outer circumferential surface;

an outer member integrally formed with a body mounting flange at its periphery, double row outer raceway surfaces at an inner circumferential surface on said outer member opposite to the inner raceway surfaces;

double row rolling elements arranged between the outer and inner members;

sealing devices for sealing annular spaces between the outer and inner members;

the inner ring is secured to the wheel hub in a non-axially movable fashion relative to the wheel hub by a caulked portion formed by plastically deforming radially outward the end of the stepped portion, of small diameter, of the wheel hub;

a sealing device on the inboard side of the sealing devices comprises a first sealing plate arranged on the inner ring and a second sealing plate arranged on the outer member opposite to the first sealing plate; the first sealing plate has a radially extending portion arranged on the inboard side of the bearing;

an encoder bonded on the radially extending portion of the first sealing plate, said encoder includes magnetic substance powder and North and South poles are alternately magnetized along the circumferential direction;

the second sealing plate has a substantially “L”-shaped cross-section formed by a cylindrical portion and a radially extending portion, at least one integral side-lip slidably contacts with the radially extending portion of the first sealing plate;

a protecting cover is mounted on the first sealing plate to intimately contact the surface of the encoder, and the protecting cover is positioned to keep a slight radial gap relative to the cylindrical portion of the second sealing plate.

7. The vehicle wheel bearing of claim 6 wherein the protecting cover has a cylindrical portion mounted on the outer circumferential surface of the first sealing plate and a radially extending portion extending radially inward from the end of the cylindrical portion and contacts with the surface of the encoder.

8. The vehicle wheel bearing of claim 6, wherein the first sealing plate is formed as a cap integrally formed with a cylindrical portion formed by folding a portion of the radially extending portion and being mounted on the outer circumferential surface of the inner ring, and a bottom portion for covering the caulked portion.

9. The vehicle wheel bearing of claim 6, wherein the protecting cover is formed as a cap integrally formed with a cylindrical portion mounted on the outer circumferential surface of the first sealing plate, a radially extending portion extending radially inward from the end of the cylindrical portion and intimately contacts with the surface of the encoder. and a bottom portion covers the caulked portion.

10. The vehicle wheel bearing of claim 7, wherein the protecting cover is secured to the first sealing portion by a caulked portion formed on the cylindrical portion of the protecting cover.

11. The vehicle wheel bearing of claim 6, wherein the protecting cover is formed by press forming of a non-magnetic steel sheet.

12. The vehicle wheel bearing of claim 6, wherein the protecting cover is formed by injection molding of synthetic resin.

13. The vehicle wheel bearing of claim 6, wherein the second sealing plate is integrally formed with radial-lip(s) directly slide-contacting with the outer circumferential surface of the inner ring.